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FIBARO Walli Controller Owner's Manual

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FIBARO Walli Controller



Important safety information

Read this manual before attempting to install the device!

Failure to observe recommendations included in this manual may be dangerous or cause a violation of the law. The manufacturer, Fibar Group S.A. will not be held responsible for any loss or damage resulting from not following the instructions of operating manual.

CAUTION!

Risk of Explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Do not modify!

Do not modify this device in any way not included in this manual.

This product is intended for indoor use only in dry locations.

Do not use in damp or wet locations, near a bathtub, sink, shower, swimming pool, or anywhere else where water or moisture are present.

Not a toy!

This product is not a toy. Keep away from children and animals!

Description and features

Description

FIBARO Walli Controller is a smart wall-mounted Z-Wave™ remote controller that can activate scenes or control other Z-Wave devices via associations.

Main features

- Can be used for controlling multiple types of devices, e.g. switches, dimmers, roller shutters.
- Pre-set configurations allow to easily adjust operation for specific type of controlled devices.
- · Battery or VDC powered.
- Equipped with a built-in temperature sensor.
- Supports Z-Wave network Security Modes: S0 with AES-128 encryption and S2 Authenticated with PRNGbased encryption.
- Works as a Z-Wave signal repeater when VDC powered (all non-battery operated devices within the network will act as repeaters to increase reliability of the network).
- May be used with all devices certified with the Z-Wave Plus[™] certificate and should be compatible with such
 devices produced by other manufacturers.

The device is a Security Enabled Z-Wave Plus product and a Security Enabled Z-Wave Controller must be used in order to fully utilize the product.

Specifications

Power supply	Battery and/or power supply unit
Battery type	ER14250 ½AA 3.6V (included)
Supply unit type	5–24V DC, LPS or NEC class 2 (not included)
Battery life	est. 2 years (with default settings and max. 10 pushes per day)
Operating temperature	0-40°C
Ambient humidity	0-90% RH without condensation
Temperature measure- ment accuracy	±0.5°C
Radio protocol	Z-Wave (700 series chip)
Radio frequency band	868.0–868.6MHz; 869.7–870.0MHz
Max. transmitting power	+13dBm
Range	up to 50m outdoors up to 40m indoors (depending on terrain and building structure)
Dimensions (Height x Width x Depth)	86 x 86 x 20 mm
Compliance with EU directives	RoHS 2011/65/EU RoHS 2015/863 RED 2014/53/EU

Radio frequency of individual device must be same as your Z-Wave controller. Check information on the box or consult your dealer if you are not sure.

First installation

You can install the device on any smooth surface using included stickers or on a mounting box using screws.

The device will select the powering mode during adding to the Z-Wave network, prioritizing external power supply if connected. To change the mode after adding, you must change the installation accordingly, then remove and add the device again.

The device features a built-in temperature sensor, for ac- curate temperature readings, install the device far from sources of heat (e.g. radiators, power supplies)

Installing on a smooth surface with battery supply

- 1. Remove the button cover
- 2. Remove the paper strip protecting the battery
- 3. LED ring light means the device is powered
- 4. Insert the button cover back
- 5. Remove the mounting frame from the device
- 6. Use the included double-sided stickers to stick the mounting frame to the smooth surface
- 7. Push the device onto the mounting frame of the device, you should hear an audible click

Installing on a mounting box with battery supply

- 1. Remove the mounting frame from the device
- 2. Place the mounting frame onto the mounting box and secure it with screw
- 3. Push the device onto the mounting frame of the device, you should hear an audible clicks
- 4. Remove the button cover
- 5. Remove the paper strip protecting the battery
- 6. LED ring light means the device is powered
- 7. Insert the button cover back

Installing on a mounting box with an external power supply

Prepare the power supply

- 1. Switch off the mains voltage (disable the fuse).
- 2. Disable the power supply
- 3. Using wire connectors, connect included power connector to the power supply (black to negative wire, red to positive wire).
- 4. Using wire connectors, connect the power supply to the mains
- 5. Place the power supply inside the mounting box, leaving the power connector outside
- 6. Remove the mounting frame from the device.
- 7. Push the power connector through hole in the mounting frame.
- 8. Place the mounting frame onto the mounting box and secure it with screws.
- 9. Plug the power connector into the device.
- 10. Push the device onto the mounting frame of the device, you should hear an audible click.
- 11. Switch on the mains voltage.
- 12. LED ring light means the device is powered.

- 13. Remove the button cover.
- 14. Remove the paper strip protecting the battery if you want to use it as emergency power source, remove the battery otherwise.
- 15. Insert the button cover back.

Adding to Z-Wave network

Adding (Inclusion) - Z-Wave device learning mode, allowing to add the device to existing Z-Wave network

The device will select the powering mode during adding to the Z-Wave network, prioritizing external power supply if connected. To change the mode after adding, you must change the installation accordingly, then remove and add the device again.

Adding manually

To add the device to the Z-Wave network manually:

- 1. Set the main controller in (Security/non-Security Mode) add mode (see the controller's manual).
- 2. Quickly, three times click one of the buttons.
- 3. If you are adding in Security S2 Authenticated, input the underlined part of the DSK (label on the bottom of the box).
- 4. LED will start blinking yellow, wait for the adding process to end.
- 5. Adding result will be confirmed by the Z-Wave controller's message and the LED frame:
- Green successful (non-secure, S0, S2 non-authenticated),
- Magenta successful (Security S2 Authenticated),
- Red not successful.

Adding using SmartStart

SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. SmartStart product will be added automatically within 10 minutes of being switched on in the network range.

To add the device to the Z-Wave network using SmartStart:

- 1. To use SmartStart your controller needs to support Security S2 (see the controller's manual).
- 2. Enter the full DSK string code to your controller. If your controller is capable of QR scanning, scan the QR code placed on the label on the bottom of the box.
- 3. Power the device.
- 4. Wait for the adding process to start (up to few minutes), which is signaled with yellow LED blinking.
- 5. Adding result will be confirmed by the Z-Wave controller's message and the LED frame:
- Green successful (non-secure, S0, S2 non-authenticated),
- Magenta successful (Security S2 Authenticated),
- Red not successful.

In case of problems with adding the device, please reset the device and repeat the adding procedure.

Removing from Z-Wave network

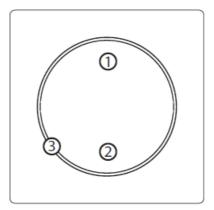
Removing (Exclusion) – Z-Wave device learning mode, allowing to remove the device from existing Z-Wave network. Removing also results in resetting the device to factory defaults.

To remove the device from the Z-Wave network:

- 1. Set the main controller into remove mode (see the controller's manual).
- 2. Quickly, three times click, then press and hold one of the buttons for 12 seconds.
- 3. Release the button when the device glows green.
- 4. Quickly click the button to confirm.
- 5. LED will start blinking yellow, wait for the removing process to end.
- 6. Successful removing will be confirmed by the Z-Wave controller's message and red LED colour.

Operation

Controls



- 1. First/ button,
- 2. Second/button,
- 3. LED ring.

Operating modes

Scene Controller: This mode is enabled by default or by setting parameter 20 to 0. In this mode, the device can activate scenes in the Z-Wave controller by sending scene ID and attribute of a specific action (using Central Scene Command Class). Associations do not work in this mode.

Button	Action	Scene ID	Attribute
	Clicked once	1	Key Pressed 1 time
	Clicked twice	1	Key Pressed 2 times
1st button	Clicked thrice	1	Key Pressed 3 times
	Held	1	Key Held Down
	Released	1	Key Released
	Clicked once	2	Key Pressed 1 time
	Clicked twice	2	Key Pressed 2 times
2nd button	Clicked thrice	2	Key Pressed 3 times
	Held	2	Key Held Down
	Released	2	Key Released

Double Button:

This mode is enabled by setting parameter 20 to 1. In this mode the device works as two separate buttons and it uses associations to control other Z-Wave devices (groups 2-5). You can control multiple devices of different type in this mode. Every button can control different group of device.

- Click ON/OFF alternately
- 2xClick send pre-set level (set in parameter 152 and 153)
- Hold increase/decrease level alternately until released

Single 3-position Button

This mode is enabled by setting parameter 20 to 2. In this mode the device works as one 3-position button and it uses associations to control other Z-Wave devices (groups 2-3). You can control multiple devices of different type in this mode.

Click – ON/OFF alternately

- 2xClick send pre-set level (set in parameter 152)
- Hold increase/decrease level alternately until released

Switch Controller

This mode is enabled by setting parameter 20 to 3. In this mode the device uses associations to control Z-Wave binary switches (group 6).

- Click 1st ON
- Click 2nd OFF

Dimmer Controller

This mode is enabled by setting parameter 20 to 4. In this mode the device uses associations to control Z-Wave dimmers (group 6).

- Click 1st ON
- Hold 1st brighten until released
- 2xClick 1st send pre-set level (set in parameter 152)
- Click 2nd OFF
- Hold 2nd dimm until released

Roller Shutter Controller

This mode is enabled by setting parameter 20 to 5. In this mode the device uses associations to control Z-Wave roller shutter controllers (group 6).

- Click 1st when stopped open
- Click 2nd when stopped close
- Click 1st/2nd when moving stop
- 2xClick 1st send pre-set level (set in parameter 152)
- 2xClick 2nd stop

Venetian blinds Controller

This mode is enabled by setting parameter 20 to 6. In this mode the device uses associations to control Z-Wave venetian blinds (with slats) controllers (groups 6-7).

- Click 1st when stopped open
- Click 2nd when stopped close
- Click 1st/2nd when moving stop
- 2xClick 1st send pre-set level (set in parameter 152)
- 2xClick 2nd stop
- Hold 1st open slats until released
- Hold 2nd close slats until released

Powering modes

External supply mode

In external supply mode, the device indicates commands status and can receive indications from the Z-Wave controller (using Indicator CC), including Identification.

Device configuration is updated immediately.

To enable the external supply mode, make sure that the external supply is connected and powered, then add the device to the Z-Wave network (remove beforehand if already added).

Battery mode

In battery mode, the device indicates commands status, but cannot receive indications from the Z-Wave controller (using Indicator CC), except for Identification.

The device needs to be woken up to change its configuration. The battery level (in percent) is measured during every power up and periodically every 24h, the measured value is reported to the controller during every power up and when it changes by at least 5%.

To enable the battery mode, make sure that device is powered only using the battery, then add the device to the Z-Wave network (remove beforehand if already added).

Temperature sensor

The device is equipped with a built-in temperature sensor. It measures the ambient temperature every 5 minutes, and reports it to the controller only when it changes by at least 0.5°C.

Waking up

When on battery power, the device needs to be woken up to receive information about the new configuration from the Z-Wave controller, like parameters and associations. By default the device is woken up automatically every 6 hours.

You can wake up the device manually using white menu position.

Visual indications

The built-in LED light shows current device status.

After powering the device:

- Green device added to a Z-Wave network (non-secure, S0, S2 non-authenticated),
- Magenta device added to a Z-Wave network (Security S2 Authenticated),
- Red device not added to a Z-Wave network.

Update:

- Blinking cyan update in progress,
- Green update successful,
- Red update not successful.

Command status:

The device displays current command status in response to clicking/ holding the button.

- Green for 2 seconds command acknowledged,
- Yellow for 2 seconds command during routing,

• Green for 2 seconds - command not acknowledged.

When holding the button, the device will periodically brighten (when increasing the level) or dimm (when decreasing the level) the LED ring with white colour, then only after realising will indicate command status.

Identification:

The Z-Wave controller can identify this device by blinking red with whole LED ring (using Indicator CC).

Custom indications:

In external supply mode, the user can use the LED ring to display custom indications. Using the Z-Wave controller user can specify on which half of the ring to indicate, number of blinks and timing (using Indicator CC). Brightness and colour of the indications is specified in parameters 13, 150 and 151.

Resetting to factory defaults

Reset procedure allows to restore the device back to its factory settings, which means all information about the Z-Wave controller and user configuration will be deleted.

Resetting the device is not the recommended way of removing the device from the Z-Wave network. Use reset procedure only if the primary controller is missing or inoperable. Certain device removal can be achieved by the procedure of removing described.

- 1. Quickly, three times click, then press and hold one of the buttons for 21 seconds.
- 2. Release the button when the device glows yellow.
- 3. Quickly click the button to confirm.
- 4. After a few seconds the device will be restarted, which is signaled with red LED colour.

Configuration

Associations

Association (linking devices) – direct control of other devices within the Z-Wave system network. **Associations allow:**

- Reporting the device status to the Z-Wave controller (using Lifeline group),
- creating simple automations by controlling other devices without participation of the main controller (using groups assigned to actions on the device).

The device provides the association of 7 groups:

1st association group – "Lifeline" reports the device status and allows for assigning single device only (main controller by default).

2nd association group - "On/Off (1)" is used to turn the associated devices on/off.

3rd association group – "Dimmer (1)" is used to change level of associated devices.

4th association group - "On/Off (2)" is used to turn the associated devices on/off.

5th association group - "Dimmer (2)" is used to change level of associated devices.

6th association group – "Multidevice" is used to control different type of devices.

7th association group – "Slats" is used to move slats of venetian blinds.

The device allows to control 5 regular or multichannel devices per an association group, with the exception of

Commands sent to association groups in Double Button Mode (parameter 20 set to 1)

	1 click	2 click	Hold	Release
Button	Basic Set: 2nd group	Basic Set: 2nd group	Multilevel Start Chang e: 3rd group	Multilevel Stop Level Change: 3rd group
Button 2	Basic Set: 4th group	Basic Set: 4th group	Multilevel Start Chang e: 5th group	Multilevel Stop Level Change: 5th group

Commands sent to association groups in 3-position Single Button Mode (parameter 20 set to 2)

	1 click	2 click	Hold	Release
Button 1 an	Basic Set: 2nd group	Basic Set: 2nd group	Multilevel Start Chang e: 3rd group	Multilevel Stop Level Change: 3rd group

Commands sent to association groups in Switch Controller Mode (parameter 20 set to 3)

	1 click	2 click	Hold	Release
Button 1 (on)	Basic Set: 6th group	_	_	_
Button 2 (off	Basic Set: 6th group	_	_	_

Commands sent to association groups in Dimmer Controller Mode (parameter 20 set to 4)

	1 click	2 click	Hold	Release
Button 1 (on	Multilevel Set: 6th gro	Multilevel Set: 6th gro	Multilevel Start Chang e: 6th group	Multilevel Stop Level Change: 6th group

Commands sent to association groups in Roller Shutter / Gate Controller Mode (parameter 20 set to 5)

	1 click	2 click	Hold	Release
Button 1 (up	Multilevel Start/Stop C hange: 6th group	Multilevel Set: 6th gro	_	_
But- ton 2 (d own)	Multilevel Start/Stop C hange: 6th group	Multilevel Set: 6th gro	_	_

Commands sent to association groups in Roller Shutter / Gate Controller Mode (parameter 20 set to 6)

	1 click	2 click	Hold	Release
Button	Multilevel Set: 6th gro	Multilevel Set: 6th gro	Multilevel Start/Stop C hange: 7th group	Multilevel Start/Stop C hange: 7th group
Button 2	Multilevel Set: 6th gro	Multilevel Set: 6th gro	Multilevel Start/Stop C hange: 7th group	LMultilevel Start/Stop Change: 7th group

Advanced parameters

The device allows to customize its operation to user's needs using configurable parameters.

The settings can be adjusted via Z-Wave controller to which the device is added. The way of adjusting them might differ depending on the controller.

In the FIBARO interface parameters are presented as simple options in Advanced Settings of the device.

Available parameters:

13.	LED frame – brightness	
Descr	iption	This parameter allows to adjust the LED frame brightness.
Param	eter size	1B
Defau	It value	100 (100%)
		0 – LED disabled
Availa	ble values	1-100 (1-100% brightness)
20.	Operation mode	
Descr	iption	This parameter defines operation of the device. Choose the mode depending on the type of the device you want to control remotely
Param	eter size	1B
Defau	It value	0 (scene controller)
		0 – scene controller mode 1 – double button mo de
		2 – 3-position single button mode 3 – switch controller mode
Availa	ble values	4 - dimmer controller mode
		5 - roller shutter / gate controller mode (step-by -step)
		6 – venetian blinds controller mode (step-by-st ep)

150.	LED ring – first button	
Descrip	otion	This parameter defines the colour of first button indicator (upper part of the LED ring) for indications using Indicator CC.
Parame	ter size	2B
Default	value	1 (white)

	0 – LED disabled 1 – White
	2 - Red
	3 – Green
	4 - Blue
	5 - Yellow
Available values	6 - Cyan
	7 - Magenta
	8 - LAPD (blinking red-white-blue)
151. LED ring – second button	
Description	This parameter defines the colour of second but ton indicator (lower part of the LED ring) for indications using Indicator CC.
Parameter size	2B
Default value	1 (white)

152.	1st button – double click value			
Description		This parameter defines value of Basic Set or M ultilevel Set frame (depending on selected mode) sent to associated devices after double click. This parameter is not relevant for Scene C ontroller Mode.		
Parame	ter size	2B		
Default	value	99		
Availab	le values	0-99 or 255		
153.	153. 2nd button – double click value			
Description		This parameter defines value of Basic Set or M ultilevel Set frame (depending on selected mode) sent to associated devices after double c lick. This parameter is not relevant for Scene C ontroller Mode.		
Parame	ter size	2B		
Default	value	99		
Available values		0-99 or 255		

Z-Wave specification

Generic Device Class: GENERIC_TYPE_WALL_CONTROLLER Specific Device Class: not used

Supported Command Classes

	Command Class	Version	Secure
1.	COMMAND_CLASS_ZWAVEPLUS_INFO [0x5E]	V2	
2.	COMMAND_CLASS_ASSOCIATION [0x85]	V2	YES
3.	COMMAND_CLASS_MULTI_CHANNEL_ASSOCI- ATION [0x8E]	V3	YES
4.	COMMAND_CLASS_ASSOCIATION_GRP_INFO [0x59]	V3	YES
5.	COMMAND_CLASS_INDICATOR [0x87]	V3	YES
6.	COMMAND_CLASS_TRANSPORT_SERVICE [0x55]	V2	
7.	COMMAND_CLASS_VERSION [0x86]	V3	YES
8.	COMMAND_CLASS_MANUFACTURER_SPECIFIC [0x72]	V2	YES
9.	COMMAND_CLASS_DEVICE_RESET_LOCALLY [0x5A]	V1	YES
10.	COMMAND_CLASS_POWERLEVEL [0x73]	V1	YES
11.	COMMAND_CLASS_SECURITY [0x98]	V1	
12.	COMMAND_CLASS_SECURITY_2 [0x9F]	V1	
13.	COMMAND_CLASS_SUPERVISION [0x6C]	V1	
14.	COMMAND_CLASS_CONFIGURATION [0x70]	V4	YES
15.	COMMAND_CLASS_FIRMWARE_UPDATE_MD [0x7A]	V5	YES

16.	COMMAND_CLASS_CENTRAL_SCENE [0x5B]	V3	YES		
17.	COMMAND_CLASS_SENSOR_MULTILEVEL [0x31]	V11	YES		
18.	COMMAND_CLASS_APPLICATION_STATUS [0x22]	V1			
19.	COMMAND_CLASS_PROTECTION [0x75]	V1	YES		
Only	Only in battery mode				
20.	COMMAND_CLASS_WAKE_UP [0x84]	V2	YES		
21.	COMMAND_CLASS_BATTERY [0x80]	V1	YES		

Wake Up CC (only in battery mode)

Min. Interval Seconds	0 – off, 3600 [s] = 1 [h]
Max. Interval Seconds	43200 [s] = 12[h]
Default Interval Seconds	21600 [s] = 6 [h]
Interval Step Seconds	3600
Default NodelD	255
Additional Sending Frame	Menu – white position

Indicator CC - available indicators

Button 1 Indicator - 0x43 -only in always on (external supply) mode **Button 2 Indicator** - 0x44 -only in always on (external supply) mode **Indicator ID** - 0x50 (Identify)

Indicator CC - available commands

Command	Indicator ID	Property ID	Value	Other
SET	All	0x03	0x00 – 0xFF	
SET	All	0x04	0x00 – 0xFF	
SET	All	0x05	0x00 – 0xFF	
GET	All	_	_	Device send Indica- tor Report
SUPPORTED GET	All	_	_	Device send Sup- ported Rep ort

Indicator CC – properties

Property ID	Description	Values and requirements
0x03	On/Off Periods	Starts toggling between ON and OFF Used to set the duration of an On/Off pe- riod. Available values: • 0x00 0xFF (0 25.5 seconds) If this is specified, the On/Off Cycles MUST also be specified.
0x04	On/Off Cycles	Used to set the number of On/Off periods. Available values: • 0x00 0xFE (0 254 times) • 0xFF (indicate until stopped) If this is specified, the On/Off Period MUST also be specified.

	On time with- in an On/Off period	Used to set the length of the On time dur- ing an On/Off period. It allo ws asymetic On/Off periods.
		Available values
		0x00 (symmetric On/Off period – On time equal to Off time)
005		• 0x01 0xFF (0.1 25.5 seconds)
0x05		Example: 300ms ON and 500ms OFF is achieved by setting On/Off p eriod $(0x03) = 0x08$ and On time within an On/Off Period $(0x05) = 0x0$
		This value is ignored if On/Off periods is not defined.
		This value is ignored if On/Off periods value is less than this value.

Protection CC

Protection Command Class allows to prevent local control using buttons.

Туре	State	Description	Hint
Local	0	Unprotected – The device is not protected, and may be operated normally via the user interface.	Inputs control radio
Local	2	Buttons cannot send control frames e.g Basic, Switch M ultilev- el, other functionality is available (menu)	Inputs do not control radio

Sensor Multilevel CC

Sensor Type	Scale	Size	Precision	Description
Temperature	Celsius (C)	2B	1	Air temperature

Regulations

Legal Notices

All information, including, but not limited to, information regarding the features, functionality, and/or other product specification are subject to change without notice. Fibar Group S.A. reserves all rights to revise or update its products, software, or documentation without any obligation to notify any individual or entity. FIBARO and Fibar Group logo are trademarks of Fibar Group S.A. All other brands and product names referred to herein are trademarks of their respective holders.

Declaration of conformity

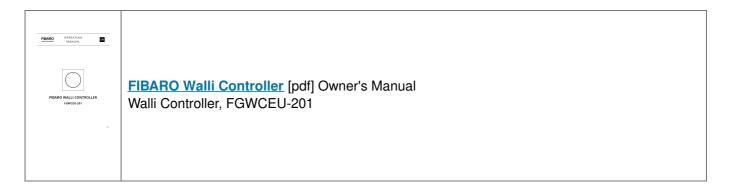
Hereby, Fibar Group S.A. (with its registered office in Wysogotowo, ul. Serdeczna 3, 62-081 Wysogotowo) declares that the device is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.manuals.fibaro.com

WEEE Directive Compliance

Device labelled with this symbol should not be disposed with other household wastes. It shall be handed over to the applicable collection point for the recycling of waste electrical and electronic equipment.



Documents / Resources



References

• FIBARO Manuals | Smart home automation devices

Manuals+,